BROOKHAVEN NATIONAL LABORATORY

Laboratory Link

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Completion of BNL's Environmental Cleanup Construction Celebrated By Senator Schumer and Other Federal, State and Local Dignitaries

Long-Term Environmental Stewardship Now in Place at Brookhaven Lab

- New York State's senior U.S. Senator Charles Schumer was among the dignitaries present at the Lab on October 14th, when, in partnership with the U.S. Department of Energy (DOE), Brookhaven Lab celebrated a major environmental restoration milestone: the completion of the construction phase of the Laboratory's environmental cleanup.
- The celebration marked a 13-year effort to characterize and clean up contamination that resulted from BNL's past use and disposal practices, some of which were commonplace at the time.
- The Lab's cleanup has been carried out under a 1992 agreement with the U.S. Environmental Protection Agency, the New York State Department of Environmental Conservation, and DOE, which funds BNL and paid for the $353 million, 2.65-million person-hour environmental remediation to date.

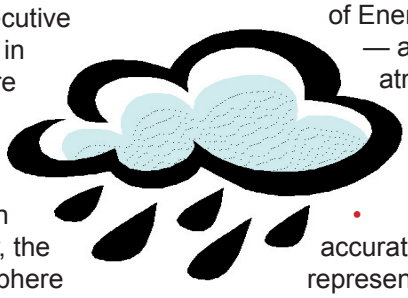
(Third from right) U.S. Senator Charles Schumer came to Brookhaven Lab on October 14th to celebrate the completion of BNL's environmental cleanup construction with, among others, Laboratory Director Praveen Chaudhari (center).

- As Schumer remarked to the crowd of regulatory and elected officials, community members and employees, he "worked hard to secure over $300 million for the cleanup of Brookhaven Lab."
- As a result of the Lab's success, Schumer concluded, "BNL is a world-class science research facility that has shown we can advance science and protect the environment at the same time, right here on Long Island."

New Mathematical Model Better Represents the Formation of Raindrops

Brookhaven Lab Develops Improved Way of Accounting for the Physics of Cloud Droplets

- After being doused with eight consecutive days of seemingly interminable rain in October, many Northeasterners were left wondering where all the rain clouds overhead and the raindrops that fell on our heads came from.
- Although applied meteorologists can predict the weather better than ever, the physics and chemistry of the atmosphere — including its clouds and raindrops — are subjects for basic research at Brookhaven Lab and elsewhere.
- Recently, with funding from the U.S. Department of Energy, three Brookhaven Lab scientists — atmospheric physicist Yangang Liu, and atmospheric chemists Peter Daum and Robert McGraw — developed a better way of mathematically modeling the formation of raindrops within clouds.

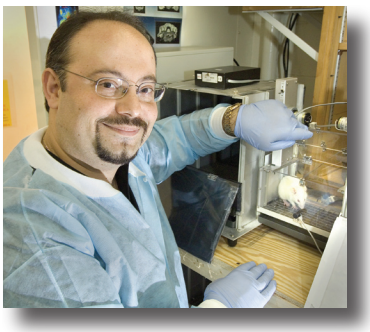


- Their computer model produces more accurate, physics-based results to create a representation of how raindrops are formed within clouds.
- Thus it better accounts for the amount of liquid water present and the concentration of rain droplets within a cloud than do previous raindrop-formation models.

BNL Study Shows Role of Marijuana Brain Receptors in Alcohol Abuse

Drug Designed to Block These Molecular Sites in the Brain May Be Useful in Treatment

- Millions of people around the world are touched by the effects of addiction, whether it is because they themselves are addicted to alcohol and/or drugs, or because people they know and love are in the grip of such an addiction.
- As more research on the mechanisms of addiction is performed at scientific institutions such as Brookhaven Lab, it is becoming more clear that the psychology of addiction has a physiological and, often, a genetic component — and that the biology involved in one type of addiction is often very similar if not the same as that underlying an addiction to another substance.



Peter Thanos

- For instance, recent studies at BNL funded by the U.S. Department of Energy and the National Institutes of Health have confirmed that a molecular site on the surface of the mouse brain associated with the reinforcing effects of marijuana also help to stimulate the rewarding and pleasurable effects of alcohol.
- The studies also confirm a genetic susceptibility to alcohol abuse and suggests that medications designed to block these "receptor sites" could be helpful for treatment.
- The study's leader, Peter Thanos, and his colleagues demonstrated the association between cannabinoid receptors called CB1, which help trigger the reinforcing properties of marijuana, and alcohol preference, intake, and seeking behavior.
- Since a medication known to block CB1 receptors proved effective in reducing alcohol intake and alcohol-seeking behavior in mice, "These findings also move us farther along the path toward successful treatment," concludes Thanos.

Upcoming, Open-to-the-Public Events

at Brookhaven National Laboratory

- **FRIDAY, NOVEMBER 4TH, 8 P.M. —** Professor "Louie" & The Crowmatix, a Woodstock, New York-based band that plays a mix of blues, rhythm & blues, and rock, will give a concert in **Berkner Hall, Bldg. 488**, to be opened by the Lone Sharks, an East End-performing band.

  Tickets for the concert cost $15 each in advance, or $20 each on the day of the show. Tickets may be purchased in advance from www.ticketweb.com or at the door on the evening of the performance. For more information, call (631) 344-3846.

- **THURSDAY, NOVEMBER 10TH, 4 P.M. —** In celebration of the 2005 World Year of Physics honoring the 100th anniversary of Albert Einstein's four monumental discoveries within one year, physicist John Rigden, author of *Einstein 1905: The Standard of Greatness* (Harvard University Press, 2005) will give a **free** talk of the same title in **Berkner Hall, Bldg. 488**.

  In his talk, Rigden will describe Einstein's particle theory of light, known as the photoelectric effect; his dissertation on molecular dimensions; his theory on Brownian motion; his theory on special relativity; and his famous equation, $E = mc^2$. Rigden maintains that Einstein's ground-breaking papers, written when he was 26 years old working by day as a clerk in a patent office, elevate him in importance above all other 20-century scientists.

- **WEDNESDAY, NOVEMBER 30TH, 12 NOON —** Pianist Rui Shi will give a **free** concert in **Berkner Hall, Bldg. 488**. The recipient of the Vladimir Horowitz full scholarship for the piano, Shi studies under Seymour Lipkin at the Julliard School in New York City. In 2003, she was the first-prize winner of the Munz Piano Foundation competition honoring the composer Frederic Chopin.

- **WEDNESDAY, DECEMBER 14TH, 12 NOON —** Stony Brook University professor, composer and cellist Peter Winkler and bassoonist Gili Sharett will play a composition of Winkler's own creation — Gili's music for bassoon and cello — during a **free** concert in **Berkner Hall, Bldg. 488**.

  Highlighting Sharett's personal influences, the piece captures the bassoon's virtuosic and expressive character. Other works on the program include a Mozart sonata, a Winkler rag, and an Astor Piazzolla tango.

PLEASE NOTE: All visitors to the Laboratory ages 16 and over must bring photo ID.